

Industrial Standardization

and Commercial Standards Monthly



October

Standards Control Quality in
Optical Manufacture
(See Article on Page 249)

1940

Coordination, Through Standardization, Key to Mass Production

"Mass or quantity production is not a process that can be started at will. Rather it is a 'system' requiring the most painstaking coordination between many different factors and requiring definite procedures involving rigid limitations.

"These procedures and limitations must be observed if constructive results are to be obtained."

—Alfred P. Sloan, Jr.

From "Production Aspects of the National Defense Program," Automotive Industries, August 1.

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Industrial Standardization

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RUTH E. MASON, Editor

This Issue

**Our Front Cover: Polishing lenses in the American Optical Company lens-grinding plant.
The polishing compounds must meet rigid standards. Courtesy
American Optical Company.**

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ASA

Reg. in U. S. Pat. Off.

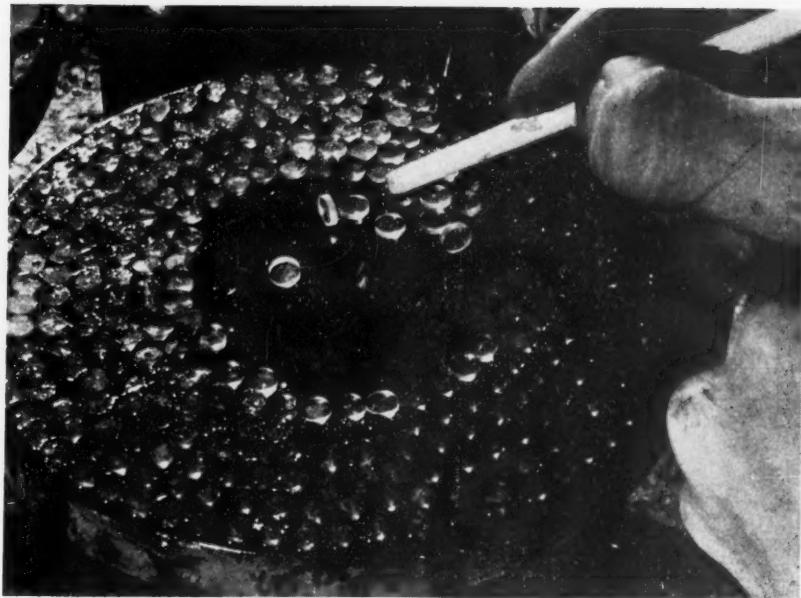
Standardization is dynamic, not static. It means not to stand still, but to move forward together.

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These tiny lenses, shown as they are being blocked for polishing, are used in eye-examining instruments. They must meet exacting standards of accuracy to assure correct results in eye examinations.



Photos Courtesy American Optical Co.

by

W. H. Lehmberg

*Development Department,
American Optical Co.*

Standards Control Quality In Optical Manufacture

STANDARDS have played and are playing an increasingly large role in giving to professional men and their patients higher and higher quality optical merchandise. Here at the American Optical Company these standards may be grouped broadly into three classifications: Purchasing, Production Quality, and Consumer Standards. In the space of a short article, it is not possible to give more than a brief hint as to how these standards operate. An example or two of each classification may indicate, however, the importance of standards in each of these groups to American Optical Company products and their manufacturing processes.

In the manufacture of optical products, we use a large variety of raw materials, such as glass, metals, rouge, abrasives, oil, and pitch. These materials must measure up to certain predetermined standards in order to produce products of the necessary high quality. To assure ourselves as to these standards, these materials are tested in our scientific laboratories. For instance, we take no chances on the presence of corrosive or tarnishing chemicals in containers or packages for optical products. We even go so far as to analyze

carefully all printing inks, cellophane wrappers, twine, and paper. This anti-tarnish test was developed by an American Optical Company chemist, and is rapidly being accepted as a standard by other manufacturers.

On the surface, it would appear that such a precaution is of minor importance. But to those who prescribe and fit glasses, and to those who wear them, the absence of corrosive and tarnishing chemicals in everything that comes into contact with spectacles is of vital importance. The chemical precautions assure both eyesight specialists and patients that, no matter how long the optical products may be stored for sale, there will be no discoloration from tarnish, no specks of deterioration from corrosion, and no clouding of lenses from the original containers.

The same attention is paid to other raw materials. Polishing rouge can only average 0 to 4 parts of "grit" per million; abrasives must not contain any non-abrasive materials; glass must have the necessary optical qualities; and so on.

The Production Quality Standards under which we function are similarly high—for example, in the case of Calobar and similar absorption glasses



Here an inspector is testing a lens for power and accuracy. She is using a Lensometer, sensitive standard lens-measuring instrument.

which are made up into ophthalmic, sun glass, and protective lenses, the latter being used by welders, furnace and foundry men whose work is extremely eye-hazardous.

These complex absorption glasses admit visible light, reduce glare, and cut out the dangerous invisible rays. Each melt must meet rigid standards through testing by the laboratory before the raw glasses are released for fabrication into lenses. Tests establishing compliance to these standards include determination of the index of refraction, ultra-violet absorption, visual color, visual transmission, total energy transmission, and, for many applications, dispersion, coefficient of expansion, chemical durability, stability against color changes in ultra-violet and sun light, and softening point. At the end of such complex scientific tests, we know precisely what to expect in the way of performance.

Here is another example of production quality control over ophthalmic lenses. During the process of grinding and polishing lenses, and after this operation is completed, strict inspections are made to ascertain whether the lenses are free of defects which would impair their optical quality. A large corps of skilled inspectors, many of them equipped with scientifically designed standard

testing equipment, spend their entire working day in making certain that all lenses produced measure up to the highest of ophthalmic lens standards.

But we are not satisfied with this very efficient inspection system. We have, in addition, another corps of super-inspectors who reinspect the finished product to make doubly certain that the lenses are perfect before they are shipped to professional men.

Standards Developed Over Many Years

It should be emphasized that these Production Quality Standards have been developed over a period of many years of research and production experience and this experience has been coordinated with that of professional men. Armed by this accumulated knowledge, fused into basic standards, we find ourselves in a position to give eyemen the finest of materials that optical science has yet devised. The end result is, of course, better vision for the millions of Americans with defective vision.

The third broad classification of standards under which we operate here at the American Optical Company are what we term Consumer Standards. These are standards established by law or authority such as those of the various bureaus of Federal and State Departments; and also voluntary standards set up by common consent such as those originating through professional or trade associations or under the procedure of the American Standards Association.

In filling government orders for the Army, Navy, and Air Corps, we operate under hundreds of standards set up by these groups. The value of standards of this type to the various govern-

The American Optical Company, which shows in this article how standards are put to work in its immediate manufacturing problems, is also working on the development of standards for national use. It is taking an active part in the ASA Committee on Standardization in the Field of Photography, which is working under the leadership of the Optical Society of America. This committee on photography is now completing proposed standards on the speed of photographic lenses and film, printing and projection equipment, and film-pack films and cases.

ment agencies is self-evident in the control and uniformity of purchased materials.

Let's consider the filling of an order of a type of protective goggles for the Navy Department. Present specifications bearing the number GGG-G-511 are found in the Federal Standard Stock Catalog, Section 4, Part 5. The entire goggle, both lenses and frame, must conform to these specifications. By referring to these specifications, the manufacturer knows exactly what he is called upon to furnish.

Voluntary or Commercial Standards promulgated by the National Bureau of Standards, as defined by the bureau, are voluntary recorded standards agreed upon by producers, distributors, and consumers, covering terminology, types, classifications, grades, sizes, and use characteristics of manufactured products as a basis for better understanding between buyer and seller. They include standard methods of test, rating, certification, and labeling, and provide a uniform basis for fair competition. They are made effective by means of voluntary guarantees on invoices, on labels, or by grade marks on the goods themselves.

Examples of these Commercial Standards to which we conform are those defining quality of sun glass lenses, and those pertaining to the marking of articles made of karat gold.

Many industrial concerns, like the government, prescribe and publish specifications for equipment they purchase. Many products we manufacture such as safety goggles, safety clothing, and respirators, are purchased from us under standards of this nature.

We believe here at the American Optical Com-



These American Optical Company chemists are testing paper for compliance with anti-tarnish standards.

pany that standards cannot be too high or too clearly enunciated. Accordingly, we are constantly reviewing our standards with the sole purpose of improving our products, eliminating waste and rejection in manufacturing, and assuring standard merchandise and quality to those who prescribe and fit glasses. This work is never finished. Constantly it goes forward. As a result of this progress, we can announce, at intervals, the development of finer optical products, products that give better and more comfortable vision to people all over the world.

List of Standard Finishes for Builders' Hardware Reduced

The Commercial Standard for Builders' Hardware (Nontemplate) has been revised, and as a result the list of standard finishes has been considerably reduced, and all type numbers have been eliminated, the National Bureau of Standards announces.

The proposed revision was circulated to the trade for approval last spring, and has now been accepted. Nomenclature, definitions, finishes, mortises, and general practices are included in the standard. It covers locks, casement-sash trim, plates for double-acting floor hinges, loose-joint butt hinges, exit bolts, door closers, backsets, nontemplate butt hinges, keys, lock fronts, flush bolts, and sash pulleys.

The Commercial Standard, CS22-40, is available from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 10 cents.

Food Distributors Plan Standards For Frosted Foods, Salad Dressings

Packaging and labeling standards for frosted foods and for nonmayonnaise salad dressings will be prepared as the result of action taken at an annual convention held recently by the National Food Distributors Association.

A committee is being named to work on packaging, labeling, and other problems for frosted foods. This action is being taken as a result of criticism made at the convention that lack of adequate packaging and freezing standards was permitting substandard products to go on the market.

The salad dressing group of the Association will request that the Food and Drug Administration or some other appropriate Federal agency develop standards. A questionnaire is being circulated to salad dressing manufacturers asking for their reactions on labeling standards and on the formation of a trade association for their group.

Railroad Purchasing Division Acts To Standardize Parts and Tools

THREE are 589 combinations of boiler thread length and 1,025 combinations of regular thread lengths now being used by the railroads which are not interchangeable between any two roads, the Committee on Standardization of the Purchasing and Stores Division, Association of American Railroads, was told in a report from 43 railroads presented at the Annual Meeting of the Division June 25 and 26. It would seem practical, the committee concluded, to standardize the lengths of threads for each end of studs in proportion to the diameters, similar to the present universal standardization of thread lengths of machine bolts. This standardization should be extended to set-ups in increased diameters of oversize butts, and to the cross-section of breakage grooves on cylinder head studs, the committee recommended.

831 Different Piston Rings

A report to the committee from 17 railroads showed 831 different piston rings and 396 piston valve rings. Standardization of the rings is being recommended. More uniform cross-sections of finished piston rings and more uniform practice on oversize diameters of cylinder and valve chambers and clearance between the ring and chamber will enable manufacturers to simplify their tool set-up, the committee declares. Assurance of a more steady demand than is possible under present conditions where each road has its own standards will make it possible to produce in larger quantities in advance of actual orders, it is explained. As a result, production of the standard rings in large quantities will result in lower prices to the railroads, more prompt deliveries, and con-

sequently a lower investment in the stock of rings needed to meet the requirements of the individual roads.

Another advantage is expected to result from standardization of piston rings. Rings, either standard or special, must be finished accurately to dimensions within allowed tolerances, and quantity production facilitates more accurate work and more effective inspection and check of the finished product, manufacturers of precision products have explained to the committee. Standardization may also help to eliminate waste due to obsolescence of rings and the fact that rings at present are not interchangeable between roads.

The Standardization Committee also recommended that railroads confine their purchase of taper shank twist drills to diameters in one-thirty-second inch steps, and that they consider economies possible in using straight-shank drills in diameters one-half inch and smaller with a universal chuck. The recommendation was the result of a report which showed that ten representative roads were using a total of 192 different diameters of taper shank twist drills.

It was reported that a standard emergency knuckle for use with Type E and Tight-Lock Couplers should be established to go with AAR standard couplers, yokes, and parts.

Tables showing the committee's recommended lists of sizes for the use of railroads in ordering stud bolts of different kinds, self tapping screws, rubber hose and paint brushes, as well as tables showing the variation in the sizes of locomotive piston and piston valve rings were presented.

The chairman of the committee is A. G. Follette, General Materials Supervisor, Pennsylvania Railroad.

Homemakers Use Federal Food Standards

More and more homemakers are asking the Agricultural Marketing Service how to use the Federal Standards of quality for food products, according to *Marketing Activities* published by the U. S. Department of Agriculture. Quantity buyers for public dining rooms and institutions also are becoming more interested in using these standards as a guide, the Service reports.

As a result of this interest a new publication, *The Consumer and the Standardization of Farm Products*, has been issued covering the application of grade standards to the needs of consumers and quantity buyers. The pamphlet discusses buying according to Federal grades of meats, poultry, eggs, butter, fruits, and vegetables, honey, and other foods for which U. S. standards have been established.

Copies are available upon request to the Agricultural Marketing Service, U. S. Department of Agriculture, Washington, D. C.

Proposed Standard Helps Reveal Causes of Accidents

THE majority of occupational accidents involve both an unsafe act and a mechanical or material cause, according to an analysis of 1,000 cases submitted by National Safety Council members and reported in the 1940 edition of *Accident Facts*, published recently. The analysis was made according to the Proposed American Recommended Practice for Compiling Industrial Injury Causes (Z16.2). An unsafe act was found in 87 per cent of the cases reported, and a mechanical cause in 78 per cent. Most of the unsafe acts were, in turn, it was found, based on some personal cause.

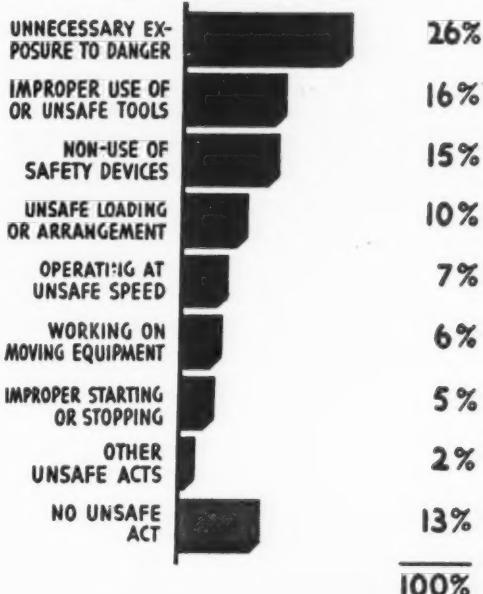
A hazardous arrangement or procedure was found in 34 per cent of the accidents. Defective agencies were reported in 18 per cent. Unsafe apparel was listed for 15 per cent, and improper guarding for 9 per cent.

The most important unsafe act was unnecessary exposure to danger, including 26 per cent of all cases. Improper use of tools or using unsafe tools was noted in 16 per cent; non-use of safety devices in 15 per cent and unsafe loading or arrangement in 10 per cent of the accidents. Other unsafe acts appeared in 20 per cent. Lack of knowledge or skill was the personal cause found in 48 per cent of the accidents. Improper attitude was indicated in 31 per cent, and bodily defects in 3 per cent.

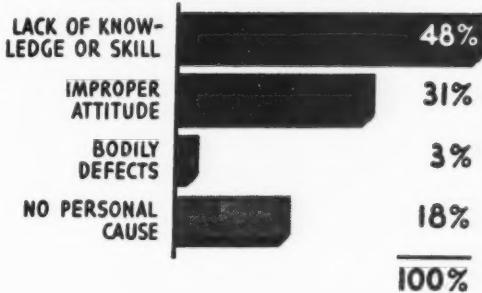
Shows Accident Statistics

The 1940 edition of *Accident Facts* gives statistics and detailed information about all accidents in general, and about specific types of accidents under the headings Occupational, Motor Vehicle, Other Public, Railroad, Aviation, Home, and School. According to the statistics reported here for 1939, motor vehicle accidents accounted for 35 per cent of all accidental deaths during the year, with falls a close second with 28 per cent. The next most important type of accidental death was due to burns, which totaled 8 per cent, and drownings 7 per cent. In the occupational field, however, the trend of industrial accident rates was sharply downward, the frequency rate dropping five per cent, and the severity rate dropping ten per cent below the rates of 1938. The type

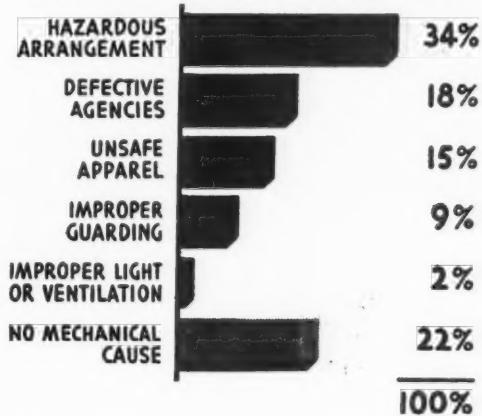
UNSAFE ACTS



PERSONAL CAUSES



MECHANICAL CAUSES



(Source: 1,000 industrial injury accidents classified by the National Safety Council according to the American Standards Association Cause Code)

From "Accident Facts"

of accident occurring most frequently, however, differs with the industry, handling objects standing highest in manufacturing and the trade and service industries, and construction, whereas falling objects accounts for the largest number in mining and quarrying. Vehicles come second in

mining and quarrying, whereas falls are next in importance in the construction and trade and service industries, and machinery in manufacturing.

Accident Facts is published by the National Safety Council, Inc., 20 N. Wacker Drive, Chicago, and is available at 50 cents per copy.

Standardization Laboratory Moves to Philadelphia

The Philadelphia College of Pharmacy and Science at Philadelphia has been selected as the new location for the laboratory of the Commission on the Standardization of Biological Stains.

The purpose of the laboratory, which is under the direction of Mrs. Anis P. Bradshaw, is to carry out the chemical analyses necessary for the certification of dyestuffs to be used as biological stains for bacteria identification and for diagnostic determinations in the United States and in certain Pan-American countries. All dyestuffs used for biological determinations are tested for dye content and identity. Another important object of the work is improvement in existing products and synthesis of new dyes for specific purposes. In addition, all certified bacteriological stains are checked as to their suitability in the staining technics in which they are to be used at the Agricultural Experiment Station at Geneva, N. Y.

The Commission was organized in 1920, when dyestuffs which had been imported from Germany were no longer available. In general, American products at that time were not satisfactory. At the suggestion of the Society of American Bacteriologists and under the auspices of the National Research Council, the laboratory was established under a grant from the Chemical Foundation. The Commission is under the chairmanship of Dr. H. J. Conn of the New York State Agricultural Experiment Station at Geneva.

the other BSI Divisional Councils—engineering, building, and mechanical.

The tentative standard is given in detail together with discussions of laboratory techniques on pages s2.2 to s40 of the Journal of the Textile Institute, Volume 30, Number 10, October 1939.

The British tests differ from those given in the American Society for Testing Materials' Tentative Method of Testing and Tolerances for Certain Wool and Part-Wool Fabrics (ASTM D 462-37T) and in the Federal Specifications for Textiles (CCC-T-191, Section XV). The American tests provide methods for determining shrinkage in the sponging of wool fabrics, while the British test applies to shrinkage in washing.

Czechoslovakian Standards Body Reorganized by Germans

The following statement of the position of standardizing activities in Czechoslovakia under its new regime has been translated from the January, 1940, issue of *L'Unificazione*, the bulletin of the Italian national standardizing body, and is published in the Bulletin of the Standards Association of Australia, July, 1940:

"The present society for standardization in Czechoslovakia and the German Standards Association have, by agreement with the German Ministry for Economics, fixed up an arrangement regarding standardizing work in the protectorates of Bohemia and Moravia. This arrangement is based on an effective collaboration between the organizations concerned.

"The present Czechoslovakian Standards Association will change its name to the Czecho-Moravian Standards Association. This society will be the central standardizing body in the territory of the protectorates of Bohemia and Moravia and will be the authority for the organization of all standards work. The CSN will retain its direct membership in the ISA (International Standards Association). In order to coordinate the industrial activity of the German and Czecho-Moravian societies, appropriate regulations will define their particular spheres. In new standardizing projects the two societies will have the aim of cooperating in order to arrive at the best possible agreement."

Retailer Group Is Named to Cooperate With National Defense Consumer Division

INFORMATIVE labeling based on standards is especially needed in a period such as the present national defense emergency when increases in the price of raw materials may lead to increases in wholesale and retail prices for consumer goods, Fred Lazarus, trustee of the American Retail Federation, told a meeting of retailers August 30. The meeting was held at the request of Miss Harriet Elliott, Consumer Adviser of the National Defense Advisory Commission. Mr. Lazarus is chairman of a committee named by the retailers to cooperate with and act in an advisory capacity to the Consumer Division of the National Defense Advisory Commission.

"Whatever price increases are necessary should be frankly and openly proclaimed to the public," Mr. Lazarus said. "If they mean higher prices for the same goods, the case is easier than when they mean the same prices for goods of less quality."

"In many lines of merchandise consumers have taught the retail merchant to establish a system of price lining, and as a result, given prices for given items have become fixed. In these items, when manufacturing prices increase, consumers in the past have resisted any corresponding increase in retail prices and have taught retailers and manufacturers alike to offer for the same price an item of somewhat lower quality. The slow growth of informative labeling will meet this situation only in part, but labeling by manufacturers needs to be encouraged wherever it seems to be an adequate answer."

"No retailer should conceal from his customers the fact that a garment or a blanket or a towel has had to be reduced in quality in order to avoid increasing the price. It is only by such information that the retailer can preserve for the consumer any real freedom of choice between price and qualities."

Members of Retailer Committee

Other members of the retailers' advisory committee to the Consumer Division of the National Defense Advisory Commission are: Oswald Knauth, National Retail Dry Goods Association and member of the Advisory Commission; Bruce McLeish, Carson Pirie & Scott Company, Chicago; Lewis Cole, chairman executive committee, National Association of Food Chains, Louisville, Ky.; Garrett Van Der Hooung, past-president, National Independent Grocers Association, Grand

Chairman of new group attacks practice of lowering quality as means of raising prices; declares labels on consumer goods would help keep public informed of price rises

Rapids; Clark Mauchley, director, U. S. Chamber of Commerce and vice-president of the Woolworth chain; John Good, druggist association, Asheville, N. C.; Horace Aikman, National Association of Hardware Dealers, Casanova, N. Y.; J. Hudson Hufferd, president, National Retail Furniture Dealers Association, Bluefield, W. Va.

In this same connection the consumer viewpoint was expressed by Mrs. Saidie Orr Dunbar, president, General Federation of Women's Clubs, at a meeting of national consumer organizations with Miss Elliott. Mrs. Dunbar said:

"Since information as to the quality of consumer goods is particularly necessary in a period when quality changes and substitutes are likely, existing standards for consumer goods should be compiled and disseminated widely among consumer groups, and the cooperation of business people in the use of standards should be sought. Where standards are not available, informative labeling should be considered and new standards developed."

— — —

Pittsburgh Building Council To Propose New Building Code

In an effort to replace the present Pittsburgh building code with a modern set of building standards, the AFL building unions and the Building Industry's Council of Pittsburgh have been asked by Mayor Scully to prepare what they consider an "ideal" code. Both codes would then be compared by city and state officials against building code requirements prepared by such national organizations as the National Bureau of Standards and the American Standards Association, Mayor Scully proposed. The Building Industry's Council has already started work on its recommendations, it was announced September 19.

Government Specifications Approved for Purchasing

Federal specifications have recently been approved for government purchasing as follows:

- Board; binders'. (new) UU-B-536 Nov. 15, 1940
- Braces; ratchet. (superseding GGG-B-671)
GGG-B-671a Nov. 15, 1940
- Calendar-pads and stands. (amendment-1) GG-C-101a
Nov. 15, 1940
- Cement; zinc-phosphate, dental. (new) U-C-211
Nov. 15, 1940
- Connectors, wire; pressure (solderless). (new)
W-C-601 Nov. 15, 1940
- Coolers, drinking-water; electric. (new) OO-C-566
Oct. 15, 1940
- Crushed-stone, crushed-gravel, and crushed slag; (for)
binder-course, sheet-asphalt-pavement. (superseding
SSC-726) SSC-726a Nov. 15, 1940
- Crushed-stone and crushed slag; (for) bituminous-
macadam-base or surface-course. (superseding
SSC-730) SSC-730a Nov. 15, 1940
- Crushed-stone, crushed-gravel, and crushed-slag; (for)
bituminous-concrete-base or surface-course. (super-
seding SS-C-731) SS-C-731a Nov. 15, 1940
- Crushed stone, crushed-slag, and gravel; (for) bitu-
minous-surface-treatment. (superseding SS-C-741)
SS-C-741a Nov. 15, 1940
- Crushed-stone and crushed-slag; (for) waterbound-base
or wearing-course. (superseding SSC-746)
SSC-746a Nov. 15, 1940
- Culverts; iron or steel, zinc-coated. (amendment-2)
QQ-C-806 Nov. 15, 1940
- Filler, expansion-joint, preformed; non-extruding and
resilient-types (for concrete). (new) HH-F-341
Nov. 15, 1940
- Flashlights; electric, hand, (without batteries). (su-
perseding W-F-421) W-F-421a Nov. 15, 1940
- Freezers, ice cream; hand-operated. (new) RR-F-646
Nov. 15, 1940
- Gloves, rubber, surgeons'. (superseding ZZ-G-421)
ZZ-G-421a Nov. 15, 1940
- Hams; sweet-pickle-cured, smoked. (amendment-2)
PP-H-71 Nov. 15, 1940 (Applicable to Navy
Dept. Purchases Only)
- Hydrometers; syringe, (for lead-acid storage batteries).
(new) GG-H-941 Nov. 15, 1940
- Investment; casting, inlay, dental. (new) U-I-546
Nov. 15, 1940
- Lampblack; dry, paste-in-japan, paste-in-oil. (amend-
ment-3) TT-L-71 Nov. 15, 1940
- Lamps; electric, incandescent, miniature, tungsten-fila-
ment. (1941 supplement) W-L-111b Sept. 1, 1940
- Lamps; electric, incandescent, large, tungsten-filament.
(1941 supplement) W-L-101d Sept. 1, 1940
- Machines, meat-and-vegetable-cutting; electrically op-
erated. (new) OO-M-52 Nov. 15, 1940
- Mats, floor; rubber, link-type. (new) ZZ-M-46
Nov. 15, 1940
- Mushrooms; canned. (superseding JJJ-M-851)
JJJ-M-851a Nov. 15, 1940
- Packing, fiber; (for) lubricating and fuel-oil. (amend-
ment-1) HH-P-96a Nov. 1, 1940
- Paint; cold-water, interior, light-tints and white. (su-
perseding TT-P-23) TT-P-23a Nov. 15, 1940
- Pans, cake; tinned, round. (new) RR-P-62 Dec.
1, 1940
- Paper; blueprint (sensitized and unsensitized). (su-
perseding UU-P-79) UU-P-79a Dec. 1, 1940
- Paper, kraft; concrete-curing, waterproofed. (new)
UU-P-264 Dec. 15, 1940
- Pipe; water, cast-iron, (bell and spigot). (amend-
ment-3) WW-P-421 Nov. 15, 1940
- Rubber; denture. (new) ZZ-R-696 Nov. 15, 1940
- Sodium-metasilicate, pentahydrate. (new) OS-604
Nov. 15, 1940
- Tires; automobile and motorcycle, pneumatic. (su-
perseding ZZ-T-381b) ZZ-T-381c Nov. 15, 1940
- Trisodium-phosphate; technical, (phosphate cleaner).
(superseding O-T-671) O-T-671a Nov. 15, 1940
- Valves, cylinder; oxygen, (for standard industrial cyl-
inders). (new) WW-V-61 Nov. 15, 1940
- Varnish; shellac. (superseding TT-V-91) TT-V-91a
Nov. 15, 1940
- White Lead; basic-carbonate, dry, paste-in-oil, and semi-
paste containing volatile thinner. (amendment-3)
TT-W-251a Nov. 15, 1940
- Zinc; slab (spelter). (superseding QQ-Z-351)
QQ-Z-351a Nov. 15, 1940

The dates after the titles above represent the dates on which the specifications become effective. The specifications may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., at five cents each.

New York Code Requires Standard Soil Pipe

Cast-iron soil pipe used by the City of New York will from now on comply with the requirements of the American Standard for Cast Iron Soil Pipe and Fittings (A40.1-1935), according to a revision of the New York City Building Code which becomes effective September 1. This standard takes the place of the former requirement

that soil pipe and fittings meet the requirements of standard A 74-29 of the American Society for Testing Materials.

The American Standard for Cast-Iron Soil Pipe and Fittings was developed by the ASA Committee on Minimum Requirements for Plumbing and Standardization of Plumbing Equipment, under the leadership of the American Society of Mechanical Engineers and the Society of Sanitary Engineering. Copies are available at 65 cents each.

ASA Clothing Committee to Vote On Body Sizes for Junior Boys

THE ASA Committee on Sizes of Children's Garments and Patterns met September 24 in New York with the Standards Committee of the Boys' Apparel Buyers' Association to consider body measurements upon which to base standard sizes for boys' clothing. As a result of the general agreement at the meeting, the ASA committee ordered a letter ballot of its full membership a proposed series of average body measurements for boys in the age range from kindergarten to junior high school, a definite step toward approval of an American Standard for body measurements upon which the fit of clothing depends. Mrs. Harriet Howe and Martin Cook, respectively chairmen of the two committees, were further authorized by the meeting to arrange with various groups of clothing manufacturers to work out standards for the fit of underwear, suits, blouses, etc.

Model Forms Are Attraction

The chief attraction of the meeting was a display of model forms for boys of from 5 to 12 years (approximately) provided through the courtesy of L. Bamberger & Company; Sears Roe-buck and Company; Spiegel, Inc.; and the American Fixture Company. These forms have been carefully manufactured to the exact body measurements which are under consideration by the committee as an American Standard, and which are based on findings of a WPA project directed by the U. S. Bureau of Home Economics in which 147,000 children throughout the country were measured. According to Miss Ruth O'Brien, chief of the Textile Division of the Bureau, the measurement program showed that the age of a child gives little indication of his actual size, whereas height and a girth measurement place the child in a definite size group. The problem has been to select from the mass of data collected in measuring 147,000 children the exact compilation of measurements which would represent the largest percentage of children in the kindergarten to junior high school age group. Several meetings of the ASA committee were held before agreement was reached on the seven sizes presented at this meeting.

Members of the committee, representing many consumer, retailer, and manufacturer organizations, crowded around these lifelike little-boy figures both before and after the meeting. Attention was called to the fact that the two smallest models representing boys averaging five-and-a-half and six-and-a-half years of age were both wearing size-six suits supplied by different manufacturers and differing in actual measurements. In other words, the smaller size-six suit roughly corresponds to a size-5 suit in the line of clothing sold by the other manufacturer. This same relationship carries through all ready-to-wear clothing for boys in the kindergarten to junior high school range, it was explained. It was pointed out that if each suit carried the chest or hip measurement as well as a measurement to indicate length, in addition to the age, there would be no confusion on the part of the buyer.

Work on the actual dimensions and marking of clothing based on the system of body sizes now being studied has not as yet been started, the first step being to arrive at agreement as to the body sizes for which the clothing is to be designed.

It is expected that the progress made at this



These manikins were made from proposed standard measurements now being considered by ASA Committee L11. Standard body measurements will be used as a basis for clothing sizes.

meeting will considerably stimulate the work on clothing for girls in the same age range, as well as older girls and boys. Data on body measurements for the larger children were also obtained by the Bureau of Home Economics. The information obtained from the Government's research program was published in U. S. Department of Agriculture Miscellaneous Publication No. 365.

The organizations represented at the meeting were:

American Fixture and Manufacturing Company
 American Home Economics Association
 Bauman's Original Designs, Inc.
 Boys' Apparel Buyers' Association
 Boys' and Students' Clothing Manufacturing Association
 The Butterick Company
 Garment Technical Institute
 General Federation of Women's Clubs
 International Association of Garment Manufacturers
 Limited Price Variety Stores Association
 National Association of Home Demonstration Agents
 National Retail Dry Goods Association
 Simplicity Pattern Company
 Spiegel, Inc.
 Underwear Institute
 United Infants' and Children's Wear Association
 U. S. Department of Agriculture, Bureau of Home Economics
 The Vogue Pattern Service and the Hollywood Pattern Company

The letter ballot on the proposed standard body sizes, which was ordered by the meeting, will enable members of the ASA committee to make any necessary consultation with the organizations they represent.

Consumer-Retailer Council Re-elects Brightman

Harold W. Brightman, vice-president and general merchandise manager of L. Bamberger & Co., Newark, was re-elected chairman of the National Consumer-Retailer Council at its annual meeting yesterday at the Hotel Woodstock. Mrs. Harriet R. Howe in charge of consumer education of the American Home Economics Association was chosen vice chairman, and Lansing P. Shield, vice-president of the Grand Union Company, was elected secretary.

Donald M. Nelson, coordinator of National Defense Purchases, and Miss Inez LaBosier, of the New Jersey Extension Service and a representative of the American Home Economics Association, were elected trustees for three-year terms. The other trustees of the council are Mrs. Saidie Orr Dunbar, president of the General Federation of Women's Clubs; Dr. Faith Williams, Social

Studies Committee of the American Association of University Women; Dr. P. G. Agnew, secretary of the American Standards Association; and Dr. David R. Craig, president, American Retail Federation.

Progress in committee activity was reported by Dr. Faith Williams of the council's labeling committee in submitting the revised draft of the manual on informative labeling, and by Frank Black, chairman of the council's store program committee, in submitting the manual on informative selling to the voting members of the council for final approval.

It was added that the Metropolitan Adjustors Association of New York, in order to further its program of reducing store costs and developing more satisfied customers, had voted to inaugurate a program to promote the more widespread use of informative labels. To accomplish this purpose the association had voted to cooperate with the council and had appointed representatives to serve on the council's committee on informative labeling and on the customer abuse of store services committee.

Standard Defines Dry Skim Milk

A standard for dry skim milk, also known as powdered skim milk and skim milk powder, has been developed under the Federal Food, Drug, and Cosmetic Act, the Federal Security Agency of the Food and Drug Administration states. The regulation defines dry skim milk and establishes a standard of identity for the product. The provisions of the standard are based upon evidence received at a public hearing held last year.

Details are published in the *Federal Register* of July 12, copies of which may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 10 cents each. The standard became effective on October 10, 1940.

L. A. Downs

L. A. Downs, member of the Board of Directors of the American Standards Association from 1929 through 1936, died August 11 at the age of 68. Mr. Downs, who represented the Association of American Railroads on the ASA Board, was chairman of the board of the Illinois Central Railroad. He had been in ill health for about two years, suffering from high blood pressure and a heart ailment.

Electrical Grounding Subcommittee Reports Need for More Research

INVESTIGATIONS to determine whether the practice of grounding electrical wiring on pipes in buildings has a detrimental effect on the water and the piping, as well as laboratory studies of polarization, and other grounding problems, were reported to the American Research Committee on Grounding by its Technical Subcommittee at the annual meeting June 29. The Committee's work, when completed, is expected to show whether there is any reason for modifying the grounding provisions of the National Electrical Code.

The subcommittee reported that its work has not shown that the flow of alternating-current over water pipes or mains by itself has caused damage to the piping or to the water flowing in the pipes. However, so many different factors are present in each case investigated that more work must be done before it can be definitely determined that such damage could not occur, the report declared.

Blue stain in the water was the principal problem on which the subcommittee reported at this time. One of its investigations indicated that deep well waters when they are soft and high in free CO₂, if not treated with lime, may cause corrosion of copper tubing which would result in blue staining at least for a time. These conditions may become more serious, the committee found, when the hot water is heated to too high a temperature.

Attachments Found Unsatisfactory

The subcommittee also reported that unsatisfactory conditions were observed at the point of attachment of ground clamps to water pipes. Two general types of ground clamps are found, one the copper strap type, and the other a cast or wrought-iron clamp, which is generally galvanized. The use of copper straps on galvanized pipes sometimes has led to corrosion of both the strap and the piping where there is moisture due to dampness in the cellar or condensation on the pipe during warm, humid weather, the subcommittee found. The moisture sets up a local electrolytic cell between the different metals, it was

Many factors complicate search for cause of damage to pipes and to water flowing in pipes

Investigations have not revealed a relation between the grounding of electrical wiring to pipes and water contamination

by

C. F. Meyerherm

*Secretary-Treasurer,
American Research Committee
on Grounding*

explained. Iron clamps on galvanized piping do not appear to have caused any adverse effects, the report declared, although the use of large cast or wrought-iron clamps on copper tubing or on lead pipe has been a source of trouble due to electrolytic effects and have also caused mechanical damage to the pipe because of the massiveness of the clamp in comparison to the tubing to which it is attached.

Improper installation of such clamps may also result in crushing or deforming either copper tubing or lead pipe. The subcommittee has discussed the development of a type of grounding connection which could be placed directly in the plumbing system at the time of installation, and to which all electrical ground connections could be solidly made without any of the difficulties which have been observed with clamps.

Laboratory studies were reported by the Technical Subcommittee to determine the polarization effects of alternating and direct current on electrolytic cells using zinc and copper electrodes. For small current densities it was revealed that zinc electrodes polarize less than copper electrodes, and that about 50 times as much alternating current as direct current is required to cause comparable polarization.

Some of the variable factors found by the subcommittee in its investigations, which have made it difficult to come to definite conclusions as to the effect of grounding on pipes, include differences in the chemical composition of water supply; in the nature of the permissible impurities in the copper tubing installed; in the number and arrangement of galvanic couples resulting from the more or less indiscriminate use of many different metals and variations in composition of the same metals; in the temperature of the hot

water supply; in the rate and amount of water drawn from the mains; and in many other factors as well as the possible effect of stray current.

The Grounding Committee has recommended that the Technical Subcommittee continue its work of investigating all complaints of contamination of water where grounding of electrical circuits is involved. It is also planning to establish simple test set-ups where accelerated reactions might be obtained if such a relation does exist. These set-ups will be of such a nature as not to require continuous observation, but will be located in water plants or laboratories where occasional checks of the results may be made from time to time under the supervision of skilled personnel.

It is still important, the Committee concluded, that all complaints be investigated as promptly as possible, in order to correlate the various factors which an expanded field experience would develop.

Non-Use of Standards Shown To Contribute To French Defeat

Standardization, or the lack of it, may be playing a larger part in the present war than is generally recognized, according to the July issue of the *SAA Bulletin*, published by the Standards Association of Australia. The daily press, according to the article, has stated that lack of replacement parts was largely responsible for the lack of fighting power of the French Air Force.

The *SAA Bulletin* says:

"A recent issue of the *Electrical Review*, London, contains the following interesting paragraph concerning the impetus to standards activities in France during the past few months.

"The outbreak of war has considerably increased the activity of the French Standards Association (Afnor), and every effort is to be made to increase both the number and the utilization of standards in all lines of manufacturing. Factories are being urged, wherever possible, to make use of existing standards. It is pointed out that in wartime, with the danger of possible destruction or transformation of factories, only the use of standard dimensions and characteristics for the parts of apparatus permits the replacement of parts, if the original manufacturer of non-standard parts finds himself unable to replace them. Moreover, the use of the standard characteristics speeds up production.

"As a matter of urgency, Afnor is to study standards for material required for war purposes, but so far as is possible, this period is also to be

utilized for the creation of industrial standards for normal purposes."

"This paragraph loses little of its significance through the French capitulation," the *SAA Bulletin* comments, "it being reported in the daily press early this month that one of the chief causes of the French Air Force's lack of fighting power was, and is, the absence of replacement parts."

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Draft Standards Published by New Zealand and Great Britain

Copies of draft standards published by the national standardizing bodies of New Zealand and Great Britain have recently been received by the American Standards Association. The proposed standards are as follows:

New Zealand

Road Traffic Control Signals No. D 1374
Ratings and Methods of Test for Heating Elements for Hot Water Cylinders No. D 1379
Flush Mounting Wall Switches, Wall Plates and Outlet Boxes for Use on 5- and 10-Amp., 250-Volt Circuits No. D 1385

Great Britain

Vulcanized Fibre (Natural Colour) Rods and Tubes for Electrical Purposes CF (EL) 6401
Draft Additions to B.S. 275 for Rivets, Other than Boiler Rivets, and B.S. 425 for Boiler Rivets CF (ME) 6341

Members of the American Standards Association wishing to borrow copies of the drafts may do so from the ASA Library.

What Humidity Percentage Should Be Standard For Paper Testing?

FOR nearly twenty years varying opinions concerning the proper temperature and relative humidity conditions most appropriate for testing printing paper and other paper products have been expressed in this country. . . .

The present TAPPI¹ standard of 65 per cent relative humidity seems to have had its origin in the textile industry of England. It is an interesting fact that textile weaving, particularly wool weaving, is facilitated by atmospheric moisture of 60 to 75 per cent relative humidity. . . .

As a corollary of this fact it is to be noted that, in England, the annual mean for outdoor relative humidity, indicated by official weather reports, lies between 65 and 75 per cent, and this condition also exists throughout the greater part of Continental Europe.

In London the reports for two successive years show average monthly variations of 50 to 88 per cent, the annual average of these monthly averages being 64 per cent. It has been noted that, as a probable consequence of the nature of European heating facilities, the indoor relative humidity is in general higher than in the United States, and this is also true of printing plants which are not air-conditioned.

It is, therefore, natural that in England and elsewhere in Europe, the materials entering into the manufacture of woven fabrics should be tested for their physical properties of strength and endurance, which determine their service ability under humidity conditions as nearly as possible, representing those which occur in the actual use of these materials in the industry. To a large extent, therefore, such test results would predict

the quality of performance of the materials under use conditions.

The textile industry in America adopted, as its standard, this European custom of testing at 65 per cent relative humidity. The earliest type of air-conditioning equipment, which was not fully designed for dehumidification, was, therefore, conveniently adapted to maintaining a relative humidity of 65 per cent.

Briefly, these were the reasons for the textile industries in Europe and in America adopting a testing standard of 65 per cent relative humidity, and the fact is emphasized that this relative humidity represents a most desirable condition un-

by

M. S. Kantrowitz²

and

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65 Per Cent Humidity, Now Used as Standard, Is Based on English Textile Requirements

Suggestion Is Made that 50 Per Cent Humidity Would Meet American Conditions More Satisfactorily and Give Better Indication of Paper Performance in Use

¹Abstracted from an article in the *Paper Industry and Paper World*, April, 1940.

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⁴The Technical Association of the Pulp and Paper Industry.

der which textile products may be spun and woven.

For precisely similar reasons the United States Government Printing Office adopted a relative humidity of 50 per cent for testing paper. A survey of atmospheric conditions has shown that, although throughout the United States the average annual outdoor relative humidity closely approximates 65 per cent, the average indoor relative humidity is not, throughout the seasons, usually greater than 50 per cent, and, during the winter months, it is often much less.

Printing Plants Prefer 50 Per Cent

A canvass of some of the largest printing plants in the United States revealed a preferential relative humidity of 50 per cent and temperature of 70-75 degrees Fahrenheit as the optimum conditions for all printing operations.

L. F. Ross, of the Parks-Cramer Company (manufacturer of air conditioning equipment), states: "Some testing laboratories make tests on both paper and textiles. In such cases, of course, a fixed common test condition is of desired convenience, but we do not feel that there are enough such laboratories to make this a very great problem. I think we can agree that the advantages of a 50 per cent relative humidity standard for the paper industry outweigh any possible disadvantages. . . . Almost without exception printing plants or other paper processing companies which have installed humidifying or air-conditioning equipment operate at a relative humidity within a 45 to 55 per cent range. Most of the paper mills which have made any serious attempt to control the moisture content of their finished papers plan to have it leave the mills with a regain corresponding to approximately 50 per cent relative humidity."

"We have heard expressions from a good many men in the paper industry indicating that they would approve a standard of 50 per cent as this would more nearly meet the conditions under which the product is used than the higher relative humidity of 65 per cent. Most printing plants which have any conditioning equipment try to maintain a relative humidity of about 50 per cent. Naturally this varies slightly in different plants, one desiring perhaps 48 per cent and perhaps another setting 52 or 53 per cent as his standard.

"From the information available to us, almost all technical testing laboratories connected with the paper and printing industry have equipment which will permit them to maintain 65 per cent relative humidity in order to meet this more or less official standard, but have sufficient refrigerating capacity to permit them to maintain 50 per

cent relative humidity and feel that this is a better standard for the paper industry.

"There is quite a tendency among paper mills and paper processing concerns to feel that a 50 per cent relative humidity is a better standard for them than 65 per cent. Probably if the 65 per cent standard had not been inherited from the textile industry, 50 per cent would have been used as the standard in the paper industry."

M. C. Cole, vice-president, Southworth Machine Company (manufacturer of air conditioning equipment), has made the following interesting statement:

"In (printing) plants where they have a regular air-conditioning system which consists of humidification, ventilation and refrigeration, the writer has found they are maintaining 45 per cent to 50 per cent relative humidity."

B. L. Wehmhoff, of the West Virginia Pulp and Paper Company, stated at the 1938 annual TAPPI convention: "Relative humidity testing conditions apply not only to printing paper but to any kind of paper. Probably I will start something on the old 65 per cent business but I do not agree with it and never did, and the only place I will agree to change is on the 50 per cent condition. I would like to see you cut it to 40 because that comes nearer the conditions under which paper is used. No printing plant that has a conditioned testing room runs them at over 50 per cent, and many of them are run under that. Nearly all the conditioned pressrooms are held around 40 per cent relative humidity."

Static Electricity Causes Trouble

The statement, frequently made, that it is easier and more economical to maintain a relative humidity of 65 per cent than 50 per cent relative humidity, may have been predicated upon the early development of refrigerating apparatus, when dehumidification of the atmosphere presented a greater problem than it does today. . . .

The difficulties experienced in the use of paper under variable atmospheric conditions occur principally in printing plants where great losses in time and production are caused by the development of static electricity, resulting from frictional effects under printing operations at a low relative humidity and temperature, paper curl due to high moisture, and dimensional variations due to variable moisture and temperature.

The quantity of moisture in the air at a relative humidity of 50 per cent is sufficiently high to avoid the development of static electric charges on the paper in process of printing or folding, and sufficiently low to avoid curling edges, misregistration and other troubles commonly incident

to very humid atmospheres at the time of printing. . . .

It is logical to test papers under the conditions which will best indicate their normal working properties, rather than to select, as standard conditions, arbitrary ones which appear venerable merely because of long-continued use. . . .

Relative Humidity Effects on Physical Properties

Weight—

Most paper, with the possible exception of newsprint, comes off the machine with a moisture content of 4 to 5 per cent of its weight and this amount is in close equilibrium with an atmospheric condition of 50 per cent relative humidity and 70 degrees Fahrenheit. At 65 per cent relative humidity and the same temperature the paper contains 7 to 8 per cent moisture by weight.

Paper is bought and sold on the basis of weight. Therefore paper should be tested at a relative humidity having an atmospheric moisture content corresponding as nearly as possible to the moisture content of the paper. W. B. Campbell, technical advisor of the Forest Products Laboratories of Canada, stated at the 1938 annual TAPPI convention: "Conditioning the paper at 65 per cent relative humidity may also change the weight beyond the amount of tolerance allowed by trade custom so that a shipment readily within the specified weight may be unjustly condemned by the literal application of such testing rules."

Folding Endurance—

Published data show that considerable time can be saved by testing paper for folding endurance at 50 per cent relative humidity. E. O. Reed found marked increases occur in the folding endurance of rag content book, bond and ledger papers as the humidity increases. The increase in the number of folds between 45 and 65 per cent relative humidity varied from 40 to 253 per cent in the machine direction and as much as 104 per cent in the across-machine direction. Kraft, rope and unbleached sulphite wrapping papers also showed marked increase in folding endurance at 65 per cent over the results at 45 per cent, the results increasing in the machine direction 276 per cent for kraft, 334 per cent for rope and 749 per cent for unbleached sulphite, and in the across-machine direction 135 per cent for kraft, 66 per cent for rope, and 330 per cent for unbleached sulphite.

M. D. Bardeen, president, Lee Paper Company, Vicksburg, Michigan, speaking at the annual meeting of the American Pulp and Paper Mill Superintendents' Association in 1931 stated: "The

fold test is the most susceptible to small changes in temperature and relative humidity but tear and Mullen and other tests are affected to an appreciable degree. The fact that the folding endurance test is being generally recognized as one of the most significant physical tests for high grade paper is demanding uniform testing conditions.

"The lack of general information concerning the variation in results of physical tests under varying conditions of temperature and relative humidity leads to considerable confusion among salesmen and purchasers through the quotation of extremely high tests, particularly folding tests, by salesmen for their sheets without specifying the temperature and relative humidity at which these tests were made. If your sheet has been tested at say 50 per cent and showed a fold of 350 double folds, it is perfectly possible for a salesman with a sheet of approximately the same or slightly lower actual grade to shave your price and at the same time claim a folding endurance of 500, as long as he is not forced to specify under what conditions the tests were made—which with a few exceptions he is not at the present time."

Smoothness—

The Government Printing Office made a series of physical tests on the smoothness of paper surfaces at 50 per cent relative humidity and 70 degrees Fahrenheit, and later the same samples were conditioned and tested at 65 per cent relative humidity and 70 degrees Fahrenheit. The results obtained at 65 per cent relative humidity were approximately 10 per cent lower than those obtained at 50 per cent relative humidity. . . .

Expansion and Contraction from Moisture—

In a research program on register of paper in offset lithography by the National Bureau of Standards in cooperation with the Lithographic Technical Foundation, a study was made of elongation of various samples of lithographic papers under tension. Samples were conditioned and tested in atmospheres of 30, 45, 65, and 75 per cent relative humidity. The following statement was made in Research Paper No. 480 of the National Bureau of Standards which discusses the results of this study: "The minimum variation between the expansion of the different papers occurred at 45 per cent relative humidity and changes in expansion for changes in relative humidity were of smaller magnitude in the vicinity of 45 per cent relative humidity than at other humidities used. These results indicate definite advantages in the selection of an atmosphere of

approximately 45 per cent relative humidity for lithographic plants."

Storage Conditions

In Miscellaneous Publications Nos. 144 and 154 which constitute reports of a study by the National Bureau of Standards on storage conditions relative to the preservation of records in libraries, A. E. Kimberly and B. W. Scribner made this statement about conditions to be maintained in the National Archives Building in Washington: "It is planned to maintain a relative humidity of 55 per cent in the storage spaces and of 45 per cent in work rooms. The latter condition is the better adapted to human beings. The temperature throughout will be kept at 70 degrees Fahrenheit during the winter and 80 degrees Fahrenheit during the summer. . . . The temperature and relative humidity recommended were chosen because they represent a range in which the substances stored exhibit good strength and flexibility."

TAPPI Survey

In 1932, TAPPI made a survey in regard to the relative humidity being used by paper manufacturers' laboratories, consumers' testing laboratories and commercial testing laboratories and the results were published in TAPPI Special Report No. 171. In this report the following were characteristic reasons given by the 50 who replied to the question as to what relative humidity they employed and why. Most of those who were conditioning at 65 per cent relative humidity stated that they were doing so because: "It is the custom," or "It is the TAPPI adopted standard," or "It is the textile industries' adopted standard," or "Most people use it," or "It seems satisfactory for the small amount of paper tested." One reply even stated that they used 65 per cent relative humidity with the hope that the entire building in which they were located might some day be air conditioned at 65 per cent relative humidity and they would then be right in line. Almost none of those using the 65 per cent standard had a factual reason for doing so, but many of those choosing 50 per cent as the testing standard presented logical reasons in support of their contentions.

The adoption of 65 per cent relative humidity has been advocated because it was the standard adopted by several European countries.

When we consider that nearly one-half the paper manufactured in the world is produced by the paper industry of the United States (according to a report issued by Charles W. Boyce while he was executive secretary of the American Paper and Pulp Association), it is quite as fitting that

the European countries should follow the example of the United States in adopting testing conditions as that we should follow their practice.

It is sometimes contended that much data accumulated during the past 30 years would be sacrificed by changing the present testing conditions.

This contention is somewhat tempered by the fact that recently-developed instruments for greater precision of measurement and improved methods of technique already have rendered the older data somewhat obsolete and worthless as a contribution to progressive science. . . .

Most fine paper manufacturers use 50 per cent relative humidity. Certain mills which formerly tested their papers at 65 per cent relative humidity have now changed to 50 per cent. Some technical men of the paper industry who formerly advocated 65 per cent now favor 50 per cent relative humidity. There is, therefore, considerable evidence that a large portion of the paper industry itself is not satisfied with the present TAPPI testing standard.

The Joint Committee on Printing of Congress in December, 1923, adopted 50 per cent relative humidity as being most nearly representative of the conditions in this country under which paper is used. The Federal Specifications Board in January, 1925, adopted 50 per cent relative humidity. Therefore for the past 15 years the specifications for all paper purchased by the United States Government have required tests to be made at 50 per cent relative humidity.

The E. I. du Pont de Nemours & Company's technical laboratories for paints and varnishes in Philadelphia chose 50 per cent relative humidity on the ground that this condition represents an excellent average of indoor winter and summer conditions throughout the United States.

The American Chemical Society recently adopted 50 per cent relative humidity for testing the papers, wrappers and envelopes used for that Society's publications.

In June, 1938, a committee of nationwide representation composed of textbook publishers, textbook manufacturers and state boards of education recommended to the States for adoption a standard of 50 per cent relative humidity plus or minus 2 per cent, for the testing of book and end papers. There is already a movement on the part of certain states of the Union to adopt Federal specification standards of 50 per cent relative humidity and 70 degrees Fahrenheit temperature for testing the paper used in printing state school text books.

Certainly the present and the future of the paper industry should be considered rather than the past when establishing definite standards for all time to come. Thoughtful consideration becomes especially important, when establishing technical

standards, in the light of the fact that there is a definite trend at present in the graphic arts and allied industries toward controlled conditions of 50 per cent relative humidity. Establishment of standards not in accord with this would soon prove to be out of step with progressive developments.

In conclusion it may be said that standards traditionally and conservatively preserved by the textile industry are not best suited to the paper and printing industries. Paper testing, whether for fundamental research, for mill control, or for the consumer is primarily for the purpose of de-

termining the suitability of paper for its industrial uses.

In the light of the foregoing facts it is therefore submitted that the paper and printing industries should establish testing standards most logically and practically suitable to indicating the performance properties of the materials they consume in production.

The Government Printing Office has for the past 18 years tested paper and paper products, purchased for the public printing and binding, under atmospheric conditions of 50 per cent relative humidity and temperature of 70 degrees Fahrenheit.

ICC Motor Carrier Bureau Issues Report on Truck Sizes

The first step toward preparation of a standard for sizes and weights of motor vehicles was taken by the Bureau of Motor Carriers of the Interstate Commerce Commission August 30. On that date the Bureau issued a preliminary report of 660 mimeographed pages analyzing the laws and regulations governing the size and weight of motor vehicles in the several states. Other reports dealing with engineering aspects, legal considerations, and the economic phases, are still in progress and may be released soon. These reports are being prepared under the authority of Section 225 of the Motor Carrier Act, 1935, which authorized the Commission to investigate this subject and to submit a report to Congress on the need for Federal regulation.

This first preliminary report is divided into three parts:

Report No. 1—State limitations of sizes and weights of motor vehicles. This is a comprehensive analysis of the statutes of every State together with administrative rulings and interpretations. It also includes a brief resume of the historical development of state, municipal, and other local governmental limitations.

Report No. 2—Road facilities and vehicles used in highway transport. This section shows the extent of road systems, their improvement, surfacing, types, and range of use. It also presents detailed data as to vehicle characteristics drawn from statewide highway planning surveys.

Report No. 3—Sizes and weights of motor vehicles in relation to highway safety.

No specific recommendations or conclusions are given in the reports, because the investigation is not yet completed. The Commission announces that upon release of reports 4 and 5 (covering engineering aspects of road and bridge facilities in relation to the loads placed on them; and legal considerations in the regulation of motor vehicle

sizes and weight) and until November 10, 1940, any interested party may file a statement commenting on or criticizing the five preliminary reports or furnishing additional information. Such statements would be filed in triplicate. The Commission will consider the statements filed and will determine whether or not a hearing is required.

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National Defense Commission Urges Cooperation on Standards

The policy of the National Defense Advisory Commission in its relation to the use of standards was outlined in general in an announcement of Principles Governing Letting of Defense Contracts, released September 20. The section on standards says:

"There should be a willingness on the part of both the Army and Navy, on the one hand, and of the supplier on the other, to adjust specifications on a cooperative basis in order that such specifications may come as near as possible to meeting commercial standards while at the same time fulfilling the military requirements."

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Industry Standardizes Surface Finishes

"A first-hand impression shows unmistakably that the standardization of surface finish has spread widely in the industry. Most recent applications of the Profilometer are found in the Detroit Transmission Division of General Motors, at Studebaker, at Caterpillar, and others. Studebaker, for example, has a roving quality man whose job is to sample crankshafts, camshafts, and other parts, daily with a Profilometer. Crankpins and journals are held within four to six micro-inches."—*Automotive Industries, August 15, 1940.*

ASA Approval of Pipe Standards Important Event in Pipe History

From an editorial in The U. S. Piper, published by The United States Pipe and Foundry Co., Burlington, N. J.

If at some future date water, gas, and sewerage operators and engineers might sit around a large conference table to compile a chronological list of the dates of important developments in their respective fields, it is highly probable that December, 1939, would be included. This date marks the formal approval by the American Standards Association of specifications for cast-iron pipe, more particularly designated as:

A21.1-1939—American Recommended Practice—Manual for the Computation of Strength and Thickness of Cast-Iron Pipe

A21.2-1939—American Standard Specifications for Cast-Iron Pit Cast Pipe for Water or Other Liquids

A21.4-1939—American Standard Specifications for Cement Mortar Lining for Cast-Iron Pipe and Fittings

"These are the first specifications to be established as ASA Standards which have resulted from 13 years of tireless efforts of the Sectional Committee (A21) on Specifications for Cast-Iron Pipe and Fittings.¹ It was not as simple as arranging a few meetings after which a harmonious agreement was reached. There had been a growing realization among designing engineers, users, and cast-iron pipe manufacturers that a new theory of design should be developed in which not only static water pressure and water hammer but also earth pressure, load from trucks, and dif-

¹This committee is working under the joint sponsorship of the American Gas Association, the American Society for Testing Materials, the American Water Works Association, and the New England Water Works Association.

Amend Federal Standard For Canned Asparagus

The Food and Drug Administration has announced that the standard for canned asparagus has been amended. The amendment changes the requirements with respect to length of stalks or spears, peeled stalks or peeled spears, tips, and points. The amendment became effective September 26. It was published in the Federal Register of June 28. Copies of the Federal Register may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 10 cents each.

ferent methods of laying are included in computations for thickness.

"A comprehensive outline of tests to be made in connection with these new specifications was drawn up by T. H. Wiggin, chairman, Sectional Committee (A21). Of primary importance was the experimental investigation of the effects of combined internal pressure and trench loads on cast-iron pipe. In addition, bursting, impact, and other tests were carried out to determine various qualities of the pipe.

"The results of these exhaustive tests showed that the relationship of trench load to internal pressures could be expressed by a parabolic curve, inspection of which readily shows that trench loading is an important factor—in some cases the major factor—in setting up stresses in the pipe. Laying conditions are also important and bear a definite relationship to the trench load.

"As a result of these findings, the new specifications are made up on a triple basis, having three variables—internal pressure, depth of trench and laying condition. Tables in the specifications make it readily possible to find the proper pit cast pipe thickness for pressure ranges of 50 to 350 pounds, trench depths of 3½ to 8 feet and four laying conditions. Furthermore, a wider range of trench depths and laying conditions can be found in the aforementioned Manual.

"With these carefully prepared specifications available, consulting engineers and pipe users can readily determine the thickness or thicknesses of pipe that will meet their known requirements. In some cases the pipe might be lighter and in other cases heavier than previously used. However, it is sound economically to use the lightest-weight pipe that is consistent with recognized engineering practice."

Alabama Adopts NFPA Standards For Liquefied Petroleum Gases

Acting under the authority of a state law approved July 6 Fire Marshal Frank N. Julian of Alabama has adopted as his regulations the 1940 standards on Liquefied Petroleum Gases developed by the Committee on Gases of the National Fire Protection Association, and adopted by the NFPA at its 1940 annual meeting. These Alabama regulations are to be applied with the force of law, the National Fire Protection Association announces in its *News Letter* for August-September, 1940.

Peacetime Standards Costly For Wartime Production

*From "Electrician," London,
England, July 5, 1940*

"Most of the contracts engaging the attention of the electrical engineering industry at the present time are based on peace-time specifications, and though no one would find fault with these from a technical standpoint, they nevertheless call for an amount of detail which in the present circumstances could be reduced without loss of efficiency or lowering of the quality. Compliance with any standard above and beyond what is actually needed to carry out a particular service or do a specified job of work, is a waste of time under existing conditions, and where Government standards require the niceties of peacetime production to be observed in the making of equipment for war service of the present destructive type, the output of our works is needlessly slowed up by the mass of red tape which entangles the machine tools.

"Some relaxation in Government specifications is also called for in the manufacture of equipment and in the materials which may be used. The standards with which the industry has to comply in the peace-time execution of Government contracts are so high that nowhere in the world can they be bettered, but it is because of their perfection that some leeway might be allowed during war-time. Such lowering of the standards need in no way affect the ultimate effi-

Eli Whitney — Father of Standardization in U. S.

In The United States, Eli Whitney, with his "Yankee ingenuity," developed the principle of interchangeable parts, the basis of manufacturing procedure today. Firearms in Whitney's day were made by hand and were capable of repair only by a gunsmith. Despite disbelief on the part of authorities that he could make the various parts of guns so nearly alike that they would be interchangeable, Whitney finally obtained a Government contract for 15,000 rifles which was fulfilled after two years had been devoted to designing and building the necessary tools in a small factory near New Haven, Conn.

From "Machine Tools—Indispensable in Peace or War," by David Langeneker, Machinery Specialist, Bureau of Foreign and Domestic Commerce.

ciency of the equipment, for our suggestion is concerned only with the finish, the casing of the component, whatever it may be, and such other conditions which, after all is said and done, have no bearing upon the equipment complying with the performance tests of the specifications."

SAE Announces New Board For Aeronautical Standards

Creation of the SAE Aeronautical Standards Board for National Defense and the appointment of Theodore P. Wright, international authority on aircraft design and construction, as its chairman, has just been announced by John A. C. Warner, general manager of the Society of Automotive Engineers.

The new board will undertake a cooperative program of development and coordination of aircraft standardization in connection with national defense.

Mr. Wright, who is vice-president in charge of engineering for the Curtiss-Wright Corp., is on leave of absence from his company to serve as executive officer of the Airplane and Engine Di-

vision, Advisory Commission to the Council of National Defense.

Carlton E. Stryker has joined the staff of the Society to take charge of its work on aircraft standards.

Australia Issues Revision Of Structural Steel Standard

The Australian Standard Specification for Structural Steel and Rolled Steel Sections for Structural Purposes (A.S. A.1) has been revised and issued as A.S. No. A.1-1940. Important changes include modification of the number of cold bend tests to be applied to each cast or batch, deletion of temper bend tests, and inclusion of many new sections.

New Foreign Standards Received by ASA Library

The American Standards Association has received copies of new and revised standards from Australia, Great Britain, and Switzerland. These are listed below. Copies of the standards may be borrowed by ASA members.

Australia

Structural steel (excluding plates) and Australian standard rolled steel sections for structural purposes (No. A 1-1940)

Great Britain

Bolted flame-proof cable-couplers, primarily for use in mines and having properties capable of being used as detachable dividing boxes (912-1940)

Pressure creosoting of timber (913-1940)

Tests for laboratory porcelain (914-1940)

High alumina cement (915-1940)

Revised

Ordinary portland and rapid-hardening portland cements (12-1940)

Steel conduit and fittings for electrical wiring (31-1940)

Carbon steel castings for ships and for marine engine and general engineering purposes (592-1940)

War Emergency Standards

Schedule of sizes of tins and cans for food products for British packers in the United Kingdom for the home trade (866 Part 1-1940)

Schedule of sizes of tins and cans for commodities other than food products for British packers in the United Kingdom for the home trade (866 Part 2-1940)

Dimensions of black bolts and nuts (small hexagon and square) B.S. Whitworth and B.S. fine (916-1940)

Air Raid Precautions Standards

Supplement. Drawings of a stirrup pump designed to comply with BS/ARP 33 (BS/ARP 33)

Ventilation for buildings in conditions of black-out, general recommendations (BS/ARP 31)

Revised Air Raid Precautions Standard

Fluorescent and phosphorescent paint, excluding radioactive materials, for ARP purposes (BS/ARP 18)

Switzerland

Aacier a clavette etire a froid caracteristiques mecaniques (10615)

Tubes de laiton, a paroi mince etire sans soudure qualite courante (11560) a paroi epaisse etire sans soudure qualite courante avec indication du diametre pour douilles usinees (11561)

Boulons bruts a tete et eteau six-pans, filetage Whitworth de $\frac{1}{4}$ " a 1" (12502 a B1.F.1) filetage metrique de M 5 a M 20 (12503 a B1.F.1) filetage metrique de M 22 a M 52 (12503 B1.F.2) filetage Whitworth de $1\frac{1}{2}$ " a 2" (12502 a B1.F.2)

Ecrous six-pans usines 0,5 d filetage Whitworth de $\frac{1}{4}$ " a 4" (12698) filetage metrique de M 2 a M 100 (12699)

Clavettes avec pente 1% generalites (15110 a B1.F.1) sans serrage generalites (15110 a B1.F.2)

Clavettes plates sans serrage (15111 b)

Clavettes a serrage avec pente 1% (15112 c) avec pente 1% clavettes sur plat (15113 b) avec pente 1% clavettes creuses (15114 b)

Clavettes plates sans serrage pour moyeux a parois minces (15115 a)

Clavettes tangentielles (15131 a)

Clavettes woodruff (15132 a)

Clavettes plates et rainures pour bouts d'arbre cylindrique diametres de 6 a 140 mm clavettes plates encastrées (15133 B1.F.1) dto. de 150 a 650 mm (15133 B1.F.2)

Clavettes plates et rainures pour bouts d'arbre conique longs, diametres de 6 a 140 mm clavettes plates encastrées (15134 B1.F.1) dto. de 150 a 650 mm (15134 B1.F.2) pour bouts d'arbre conique courts, diametres de 6 a 140 mm clavettes plates encastrées (15135 B1.F.1) dto. de 150 a 650 mm (15135 B1.F.2)

The above standards from the national standardizing body of Switzerland are published in both French and German.

Australian Standards Association Helps Best Use of Material

"The events of the past quarter have given clear evidence of the need for Australia to devote all her resources to the supreme task of aiding the Empire's war effort. Those resources include man-power and raw materials, both of which must be converted by training or fabrication into effective instruments for the conduct of a war

"The Association is, in fact, already busily engaged in dealing with one aspect of the second phase of the problem—the utilization of our resources of materials. This is done by the prepara-

ration of specifications applicable to Australian production of a variety of materials required for defence purposes, notably materials for aircraft construction.

"Other avenues of usefulness, by no means confined to the normal function of standardization, are being explored, and it is hoped that important undertakings may be entrusted to the Association. This may involve the postponement of all but the more urgent branches of its normal work. Such action, however, would be amply justified if full advantage could thus be taken of the exceptional possibilities for usefulness which the Association's organization offers."—*S.A.A. Bulletin, July, 1940*, (published by the Standards Association of Australia).

NEMA Requests Project For Electric Flat Irons

THE American Standards Association has received a request for the development of an American Standard for Domestic Electric Flat Irons, one of the most commonly used domestic electrical appliances. This request comes from the National Electrical Manufacturers Association, and grows out of the interest displayed by a number of consumer organizations on the subject of Standards for Household Electrical Appliances. "We believe," said the National Electrical Manufacturers Association in requesting the project, "that the state of the art is such that the development of an American Standard covering this device might be undertaken now."

Committee May Be Organized

If the undertaking is approved by the Standards Council of the American Standards Association,

a committee representing manufacturers, power companies, safety organizations, distributors, consumer interests, and insurance groups will be set up to develop the standard. The National Electrical Manufacturers Association has suggested that the standard include definitions, methods of test for flat irons, performance characteristics, durability, safety, ratings, nameplate markings, and informative labeling.

Some very valuable work on standardization of flat irons has been done by a group of members of the National Electrical Manufacturers Association in the past four years. These NEMA standards used by many of the manufacturers themselves have been offered as an indication of the type of subject matter which could be included in the proposed standard and as an aid to the committee appointed to develop the standard. They will serve as a basis for the work now being considered.

Lighting Equipment Association Will Certify Lighting Fixtures

Residential lighting fixtures which meet the lighting performance requirements of the Illuminating Engineering Society and the design requirements of the American Lighting Equipment Association will be identified to the public by means of a certification tag, in a new Specification-Certification Program just adopted by the lighting equipment association. All types of residential lighting fixtures will be covered in the new program. The inspection and certification services of the Electrical Testing Laboratories will be used to determine which fixtures are entitled to display the certification tag.

Under the terms of the program, manufacturer-members of the ALEA will be required to submit samples of eligible fixtures to the Electrical Testing Laboratories for testing and inspection. Only those fixtures conforming to the IES specifications and meeting the approval of the Advisory Board of Design of the ALEA will be permitted to carry the certification tag.

The specifications were drafted on the premise that luminaires should give eye-pleasing adequate general illumination without glare. This premise, while seemingly quite simple, is in reality quite complex, according to the announcement of the

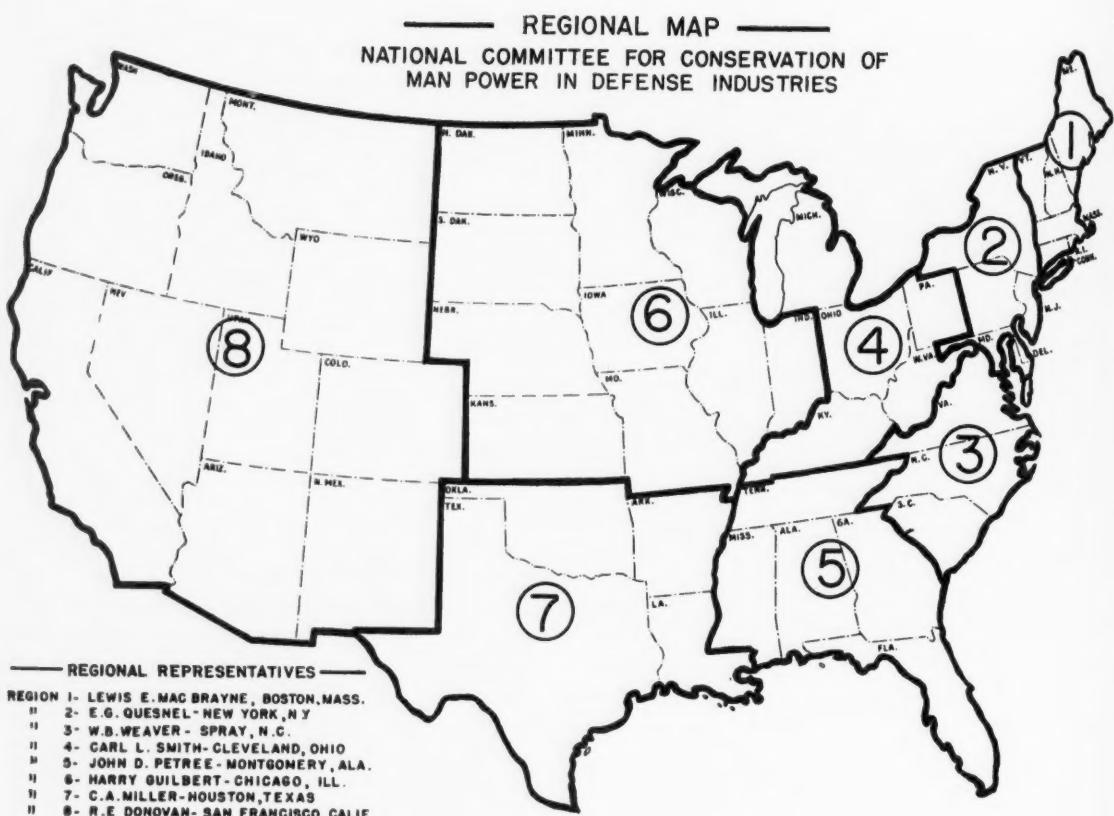
program by the ALEA, because of the many variations affecting efficiency, illumination distribution, and brightness, and in the size, shape, color, and use of rooms.

As finally developed, the specifications allow ample design latitude, while at the same time requiring strict adherence to the most acceptable current lighting practice, the ALEA reports in its announcement.

Is Step Forward

"The ALEA Specification-Certification Program represents a distinct step forward in the manufacture and merchandising of residential lighting fixtures," said J. Markel, president of the Association, in announcing the new plan. "It constitutes the first organized attempt to provide the public with certified, design-approved residential luminaires produced according to the best opinion of recognized lighting and design authorities.

"Recent surveys furnish impressive evidence that public demand for well-designed overhead lighting is on the increase. This new phase of the ALEA program, with its anticipated widespread promotional activity, on certified overhead lighting, opens new opportunities for better lighting to the public, and a wider field for industry sales and service."



New Government Program Uses Safety Codes To Conserve Manpower in Production

SAFETY codes approved by the American Standards Association are being used in a new program just started by the Division of Labor Standards, U. S. Department of Labor, to help prevent loss of time in defense production due to sickness and accidents.

The plan centers in a new National Committee for Conservation of Manpower in Defense Industries, made up of safety experts from industry, representatives of labor organizations, and of safety groups. The work of the committee is based on the principle that industrial manpower is an essential resource and instrument of preparedness, and that any waste of labor which impedes maximum national production of needed equipment menaces the security of the country. At a time when many new workers are going into industry, the need for special precautions to pre-

Efficiency of labor is essential in defense production, new Department of Labor Committee declares

Nationwide program to prevent waste of labor power is organized

vent accident and disease is especially urgent, the committee explains.

The first meeting of the National Committee for Conservation of Manpower was held in June, and since that time rapid progress has been made in

organizing its work. Eight members of the Committee have been named to serve as Regional Representatives to localize the program in strategic industrial centers of the country. District and local representatives chosen from safety engineers directly connected with industry are being appointed to visit the defense production industries, to supply these industries with information needed to carry out the following program for protection of workers in industry:

1. Prevent the maiming, killing, or injuring of trained and skilled workers essential to industries engaged in defense production
2. Prevent the loss of valuable production time on the part of workers through sickness, accidental injury, or occupational diseases
3. Prevent disruption and delays to production schedules, damage to machines and equipment or wastage of materials which follow in the wake of accidents
4. Control, insofar as possible, all factors which may render the worker less physically fit for the job of maintaining quantity and quality production

"In essence," explains W. T. Cameron, Chief Safety Adviser, Division of Labor Standards, "the plan represents the pooling of all accident prevention and industrial health conservation knowledge in which government, management, and labor participate and share equally in the benefits. Management benefits through uninterrupted and less costly production, labor by uninterrupted wages and earnings, the government by assurance of 'on time' delivery of needed defense materials."

Several types of physical conditions must receive attention if accidents are to be prevented, the Division points out:

1. Fire and explosion hazards
2. Structures, equipment, and maintenance
3. Machine guarding
4. Power and electrical hazards
5. Handling and transporting materials

In addition to physical conditions, sanitation and hygiene, including the important problems of heating, lighting, fatigue, dusts and fumes, are considered part of the program for protection of workers.

When a plant is awarded a government contract, the plant management will be notified of its general responsibility to safeguard production through the inauguration of a safety program. It will also be informed that a safety specialist is available in that community to act as his safety adviser. The Regional Representative of the National Committee will, at the same time, be given the name and location of the plant and he, in turn, will immediately assign a district or local

The National Committee For Conservation of Manpower

The National Committee for Conservation of Manpower in Defense Industries has the following membership:

- Cyril Ainsworth, Assistant Secretary, American Standards Association, New York, N. Y.
- W. H. Cameron, Managing Director, National Safety Council, Chicago, Ill.
- John P. Coyne, President, Building and Construction Trades Department, American Federation of Labor, Washington, D. C.
- R. E. Donovan, Chief Safety Engineer, Standard Oil Company of California, San Francisco, Calif.
- John P. Frey, President, Metal Trades Department, American Federation of Labor, Washington, D. C.
- Clinton S. Golden, Director, Northeastern Region, Steel Workers Organizing Committee, Pittsburgh, Pa.
- Harry Guilbert, Director, Bureau of Safety and Compensation, The Pullman Company, Chicago, Ill.
- Ralph Hetzel, Research Director, Congress of Industrial Organizations, Washington, D. C.
- Thomas P. Kearns, Superintendent, Division of Safety and Hygiene, Industrial Commission, Columbus, Ohio
- Lewis E. MacBrayne, General Manager, Massachusetts Safety Council, Boston, Mass.
- Charles A. Miller, Assistant to Manager, The Texas Company, Houston, Texas
- Herbert W. Payne, Textile Workers Union of America, New York, N. Y.
- Eric Peterson, General Vice-President, International Association of Machinists, New York, N. Y.
- John D. Petree, Director, Alabama Department of Industrial Relations, Montgomery, Ala.
- E. G. Quesnel, Director of Safety, The Borden Company, New York, N. Y.
- R. R. Sayers, M.D., Director, Bureau of Mines, U. S. Department of Interior, Washington, D. C.
- Carl L. Smith, Managing Director, Cleveland Safety Council, Cleveland, Ohio
- L. Metcalfe Walling, Director, Public Contracts Division, U. S. Department of Labor, Washington, D. C.
- W. B. Weaver, Manufacturing Division, Marshall Field and Company, Spray, N. C.
- Albert W. Whitney, Consulting Director, The National Conservation Bureau, New York, N. Y.
- W. H. Winans, Director, Industrial Relations Department, Union Carbide Company, New York, N. Y.
- V. A. Zimmer, Director, Division of Labor Standards, U. S. Department of Labor, Washington, D. C.

committee member as the safety adviser to that plant.

The selection of the proper adviser will depend, Mr. Cameron explains, upon his proximity to the plant; his knowledge of the industry involved, the type of hazards to be encountered and his experience in their control; whether the plant is large or small, i.e., whether it has an effective safety organization and simply needs an "outside viewpoint" consisting principally of technical assistance, or whether an organization-promotion man is needed to sell and set up a program; and the "competitive situation," since it is not considered advisable to send a representative from an industry normally in competition with the plant concerned.

Will Be Diplomatically Aggressive

The adviser assigned is expected to follow a policy of "diplomatic aggressiveness." He will volunteer to assist the management in the organization of a safety program, in the organization of shop safety committees, in the creation of a training program. He will also volunteer to make an appraisal of physical hazards and submit information on their correction, and in other ways will act as a continuous adviser to the management for the duration of the contract.

The Labor Department's Division of Labor Standards, as a part of its work in promoting industrial health and safety, is acting as the clearing house for all activities in connection with the plan. The technical staff of the safety and health section of the Division is responsible for the preparation, under the direction of the National Committee, of procedures, forms, and promotional material, and educational and technical material. In its capacity of executive secretary to the National Committee, the health and safety section will keep a record of accident experience in contract industries and report its findings to the National Committee.

ASA Fire Protection Group Names Bugbee Secretary

Percy Bugbee, Managing Director and Secretary-Treasurer of the National Fire Protection Association, has been named secretary of the Fire Protection Group, Member Body of the American Standards Association. Mr. Bugbee succeeds Franklin Wentworth, who has retired. The Group is made up of the Associated Factory Mutual Fire Insurance Companies, the National Board of Fire Underwriters, Underwriters' Laboratories, and the National Fire Protection Association.

The Public Contracts Division of the Labor Department has already arranged to send to the National Committee a record of each contract as placed. In addition, the Division's staff of trained investigators, located throughout the country, are cooperating with regional, district, and local representatives of the National Committee in promoting acceptance of the voluntary assistance offered by the Committee.

The National Committee is now preparing safety material and technical safety information. Special Bulletin Number One, *Safeguarding Manpower for Greater Production*, has already been published. It tells how to eliminate physical hazards in the plant, discusses general considerations important in keeping workers physically fit, and describes the essentials of plant safety organizations. It refers to many approved American Standard Safety Codes as a means of protecting workers, such as the Code for Pressure Piping, the Code for Mechanical Power-Transmission Apparatus, the Code for Power Presses and Foot and Hand Presses and the Code for Woodworking Plants, the National Electrical Safety Code, the Code for the Protection of Head, Eyes, and Respiratory Organs, the American Standard Method of Compiling Industrial Injury Rates, and the American Recommended Practice for Safety in the Construction Industry.

Special Bulletin Number Two, *The Worker and National Defense*, contains practical suggestions for workers on safe work practices and on keeping physically fit on the job. This bulletin will go to press soon.

Special Bulletin Number Three, covering in detail the control of plant conditions which contribute to the health, efficiency, and well-being of workers on the job, is now being prepared. It will include practical information on heating and ventilation, lighting and vision, fatigue, the control of dust, fumes, vapors, gases and mists, personal hygiene facilities, personal protective equipment, medical and first aid facilities.

Trade Association Executives Elect Herman Lind President

Herman H. Lind, executive vice-president of the American Institute of Bolt, Nut and Rivet Manufacturers, was elected president of the American Trade Association Executives at the ATAE annual meeting in Chicago, in September.

Charles E. Boyd, secretary of the Retail Merchants Association of Detroit, and Bond Geddes, executive vice-president and general manager of the Radio Manufacturers Association, were elected ATAE vice-presidents.

British Conserve Tin With Standard Cans

From "Evening News," London

"Now that there is a more urgent need for steel than to make it into tinplate for manufacturing containers for nail polish or bath salts, the British Standards Institution has drawn up two booklets which give the new official standard sizes and shapes for all new tins and cans.

"New tinplate will not be released for any other tins, but it will still be possible to make them of scrap tinplate reclaimed.

"One of the two booklets describes the tins for food products, the other the tins for all other commodities, including oil, tobacco, paint, and polishes.

"The trades concerned have submitted loyally to the needs of the times, and thanks to the work of coordinating committees there has been a great rationalization of the industry.

"For instance, whereas there were formerly no fewer than 200 different sizes of tins in use for meat products alone, the number has now been reduced to 21.

"The sizes and shapes of the tins have been chosen to serve the interests of economy, not of money, but of tinplate.

"The larger the size, the less the waste of tin, in the sense that there is the largest possible proportion of contents to tinplate area.

"A similar sort of economy depends on the shape of the tin, not only because a very flat tin is wasteful, using a lot of tinplate in order to hold very little, but because it is easy to waste tinplate on a bad design.

"The tinplate is supplied in sheets, and the tins should be so shaped that as little as possible of the sheet is wasted in trimmings and odd surplus strips.

"Experts say the best, most economical cylindrical tins have a diameter about two-thirds of their height.

"The reclaiming of the steel from scrapped tinplate is a difficult and expensive affair, and it is more important to save tins which can be used again than to give them up for 'salvage.'

Cannot Use "Open Tops" Again

"Tins of the 'open top' type, which have to be cut open, such as fruit tins, are the only ones which cannot be used again. Tins with hinged or press-up lids or screw tops can be used again.

"Tobacconists may ask customers to bring back their empty tins, for apart from the sizes of tins which are now banned, there will be a severe rationing of all tins, and many trades will have to make do with half or a quarter of their pre-war supply of tinplate.

"Large tins imported into this country will be used here. For instance, a quantity of honey is imported from Australia in large 60 lb tins, and arrangements are being made to supply these tins, when the honey has been taken out, to a British firm which can find a good use for them, and which can consequently cut down its requirements of new tinplate."

Standard Rubber Terms Needed, Yerzley Tells SAE Meeting

"Rubber company engineers may not realize the serious position in which other engineers find themselves when they desire to use rubber for the first time," said F. L. Yerzley, E. I. duPont de Nemours & Company, Inc., at the annual meeting of the Society of Automotive Engineers, June 9-14. "Because of the lack of data on rubber properties, such engineers have been known to throw up their hands and use another, less-suitable material in their designs," he continued. He stressed the need for clarification of terminology,

and said that the trouble caused by different interpretations of the same terms is difficult to appreciate.

Standard Clothing Considered by British

A standard clothing scheme is being considered by the British Government, to restrict the varieties of materials, qualities, and styles, formerly available. The scheme aims at economy of production, and will enable more men and women to be released for work of national importance, a news item in a London paper explains.

Australian Standards Important In Meeting War Emergencies

THE war has made it necessary for industry in Australia to speed up production and furnish materials with the least possible loss of time and effort. The fact that a well-established system of national standards, specifications, and testing methods exists has made it possible for Australian industry to meet the war emergency with greater efficiency, according to a recent report from the Standards Association of Australia.

The April issue of the SAA Bulletin, its official publication, explains that the Association's technical staff has had an extra burden thrown on it as a result of the stimulus given to industry generally by the war. "Many engineering and manufacturing establishments have suddenly been called upon to undertake work never previously contemplated and are making very full use of the Association's facilities," it states.

Supplies Technical Information

The part the Association's staff is playing in supplying technical information to industry covers many phases of standardization work. The members of the staff have felt added pressure in answering inquiries as to standard machine finishes, tolerances, limits, fits, etc.; in supplying details as to standard methods of carrying out, inspecting, and checking processes and production methods; advising as to standard methods

of testing and arranging for the testing; advising as to the suitability of certain materials for a given use; and in interpreting British, Australian, and other standards. The Association is frequently called upon to direct inquiries concerning British Admiralty and War Office Specifications to appropriate sources of information; to aid in the filling of defense contracts by interpreting specifications and drawings; and to furnish specifications covering the many materials needed in war emergencies.

The Standards Association of Australia has found that the sale of Australian, British, and other standards has been particularly heavy as a result of the war. The Association has furnished specifications and information to new industries setting up plants to supply materials of which there is a shortage. It has been called upon to supply standards and information required as a result of the fact that industry is now facing problems it has never faced before.

The *SAA Bulletin* declares: "An important aspect of all this work is that it tends to make the Association and its activities far more widely known than would be the case normally, and on the return of industry to normal conditions after the war, it is to be expected that the increased knowledge of the benefits to be derived from the widespread use of standard specifications and codes will lead to the maintenance of the interest at present being displayed in standardization activities."

Vitrified Paving Brick Recommendation in Print

The new revision of Simplified Practice Recommendation, R1-40, for Vitrified Paving Brick is now available in printed form, the National Bureau of Standards announced. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for five cents each.

The original Simplified Practice Recommendation, covering sizes and varieties of vitrified paving brick, was formulated by the industry in 1922. The combined efforts of the first conference and subsequent actions of the committee in charge have resulted in a reduction in varieties from 66 to 5. The current recommendation became effective August 15, 1940.

Department of Agriculture To Supervise Fruit Grading

The C. D. Kenny Company of Baltimore, Md., has announced that it will distribute a complete line of Grade A canned fruits, packed under continuous supervision of Department of Agriculture inspectors in the California plants of Schuckl & Company and U. S. Products Corporation. The line will carry Kenny's name, but the labels will read: "U. S. Grade A (Fancy). This grade officially certified by the U. S. Department of Agriculture. Packed under continuous supervision of the Agricultural Marketing Service of the U. S. Department of Agriculture."

Schuckl and U. S. Products are the first packers to accept the Department of Agriculture's grading and inspection program.

ASA Standards Activities

Approved Standards Available Since Publication of Our September Issue

Twist Drills, Straight Shank American Standard B5.12-1940 55¢
Approval Requirements for Hotel and Restaurant Ranges and Unit Broilers American Standard Z21.3-1940 \$1.00
Addenda to Approval Requirements for Central Heating Gas Appliances American Standard Z21.13-1940 20¢
Approval Requirements for Hotel and Restaurant Deep Fat Fryers American Standard Z21.27-1940. \$1.00
Book Cloths, Buckram, and Impregnated Fabrics for Bookbinding Purposes Except Library Bindings. American Standard CS57-40 5¢

Standards Approved Since Publication of Our September Issue

Specifications for Mineral Iron Oxide (Revision of K25-1937) American Standard K25-1940
Specifications for Chrome Yellow (Revision of K27-1937) American Standard K27-1940
Specifications for Reduced Chrome Green (Revision of K28-1937) American Standard K28-1940
Specifications for Prussian Blue (Revision of K29-39) American Standard K29-40
Specifications for Reduced Para Red (Revision of K31-1939) American Standard K31-1940
Specifications for Chrome Oxide Green (Revision of K37-1937) American Standard K37-1940
Method of Test for Flash Point by Means of the Pensky-Martens Closed Tester (Revision of Z11.7-1936) American Standard Z11.7-1940
Method of Test for Water and Sediment in Petroleum Products by Means of Centrifuge (Revision of Z11.8-1935) American Standard Z11.8-1940
Method of Test for Water in Petroleum Products and Other Bituminous Materials (Revision of Z11.9-1930) American Standard Z11.9-1940
Method of Test for Distillation of Gasoline, Naptha, Kerosine and Similar Petroleum Products (Revision Z11.10-1938) American Standard Z11.10-1940
Method of Test for Distillation of Natural Gasoline (Revision of Z11.11-1939) American Standard Z11.11-1940
Methods of Analysis of Grease (Revision of Z11.16-1937) American Standard Z11.16-1940
Method of Test for Precipitation Number of Lubricating Oils (Revision of Z11.30-1935) American Standard Z11.30-1940
Method of Test for Knock Characteristics of Motor Fuels (Revision of Z11.37-1939) American Standard Z11.37-1940
Method of Test for Unsulfonated Residue of Plant Spray Oils American Standard Z11.41-1940
Specifications for Stoddard Solvent American Standard Z11.42-1940
Specifications for Gypsum Plasters (Revision of A49.3-1939) American Standard A49.3-1940
Specifications for Gypsum Molding Plaster (Revision of A49.4-1933) American Standard A49.4-1940
Specifications for Gypsum Pottery Plaster (Revision of A49.5-1933) American Standard A49.5-1940

Specifications for Carbon-Steel Castings for Valves, Flanges, and Fittings for High-Temperature Service (Revision of G17.1-1936) American Standard G17.1-1940

Specifications for Forged or Rolled Steel Pipe Flanges for High-Temperature Service (Revision of G17.3-1939) American Standard G17.3-1940

Method of Sampling Coal for Analysis (Revision of X1-1921) American Standard K46-1940

Standards Now Being Considered by Standards Council for ASA Approval

Keyways for Holes in Gears B6.4
Standards for Felt
Proposed American Recommended Practice for the Use of Explosives in Anthracite Mines M27
Commercial Standards for Sun Glass Lenses (CS 78-39; CS 79-39)
Methods of Testing and Tolerances for Tubular Sleeving and Braids (ASTM D 354-36) L13
Protection of Structures Containing Inflammable Liquids and Gases—Part 3 of Code for Protection Against Lightning (From status as American Tentative Standard to American Standard) C5, Part 3
Electric Fences, Part 6 of the National Electrical Safety Code
Cast-Iron Pipe Flanges and Flanged Fittings, Class 250 (Revision of B16b-1928)
A-C Power Circuit-Breakers C37.4
Methods for Determining the Rms Value of a Sinusoidal Current Wave and a Normal Frequency Recovery Voltage C37.5
Schedule of Preferred Circuit-Breaker Ratings C37.6
Operating Duty for Standard and Reclosing Service C37.7
Rated Control Voltages C37.8
Test Code for Oil Circuit-Breakers C37.9
Motion Picture Standards Z22.2 through Z22.33

Standards Withdrawn by ASA

Specifications for Ultramarine Blue K30-1937
Method of Test for Sulfur in Petroleum Oils by Lamp Method Z11.38-1935
Method of Test for Color of Lubricating Oil and Petroleum by Means of ASTM Union Colorimeter Z11.34-1939
Method of Test for Neutralization Number of Petroleum Products and Lubricants Z11.12-1928

New Project Being Considered

Domestic Electric Flat Irons

Drafts Available

Allowable Concentrations of Carbon Monoxide	Z37
Allowable Concentrations of Hydrogen Sulfide	Z37
Allowable Concentrations of Carbon Disulfide	Z37
Allowable Concentrations of Benzene	Z37
Safety in Electroplating Operations	Z9

American Standard



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